OLYMPUS 6"x6" IC INSPECTION MICROSCOPE

MODELS BH2-MJL

TROUBLESHOOTING

(FOR ELECTRICAL SYSTEM)

OLYMPUS

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A. GENERAL DESCRIPTION

1. This troubleshooting guide is written in the form of a flow chart. So, proceed with troubleshooting and repair along each arrow mark indicated.
2. In this troubleshooting flow chart, connector terminal numbers and IC pin numbers are enclosed in ☐ as [1] , [9] .
3. For example, 5V indicated in [1] → [5] for power check and level check means to imply that [1] is taken as GND side and [5] as the HOT side.
   In this case, [5] indicates that 5V is being sent out to [1] .
4. [CA] used in this troubleshooting guide refers to the suspected cause of trouble insofar as the corresponding item is concerned.
5. The meter used for this troubleshooting is only the volt-ohm milliammeter (VOM) (e.g. u-70D, etc.)
6. Items marked ⓐ , ⓑ , ⓒ . . . . outside item blocks in the process of checks correspond to the same marks given either to the right of the item blocks or to the right of those on the next page where the details of check are described.

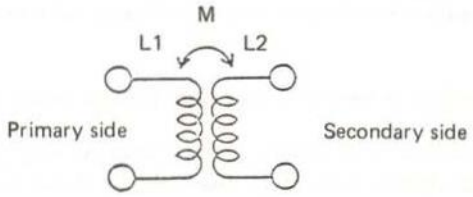
B. DEFINITION OF TERMS USED

1. GND ⇨ Reference potential in electronic circuits. The potential is 0V.

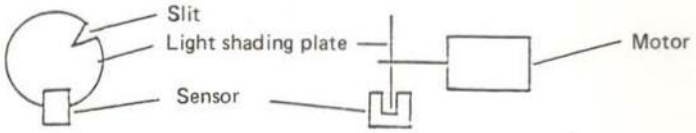
2. HOT ⇨ The line which supplies power voltage to "GND" is referred to as "HOT".

3. DC Motor ⇨ This refers to a DC motor which starts upon DC power.

4. Primary Side ⇨ This is also known as the input circuit.
When two coils, L1 and L2, are linked by mutual inductance M (magnetic coupling), L1 of the input side is called either the primary side or the primary circuit, and L2 is called the secondary side or the secondary circuit.



5. Slit ⇨ This refers to a cut-in point. Here, a part of the light shading plate blocking a transmissive type sensor light is used as slit.
This slit allows the transmissive type sensor light to plass through it, thereby turning the sensor on. But if the slit is too wide, the period of time in which the sensor is on may prolongs. Care should therefore be taken as the nosepiece may stop at a point somewhat away from the click position.



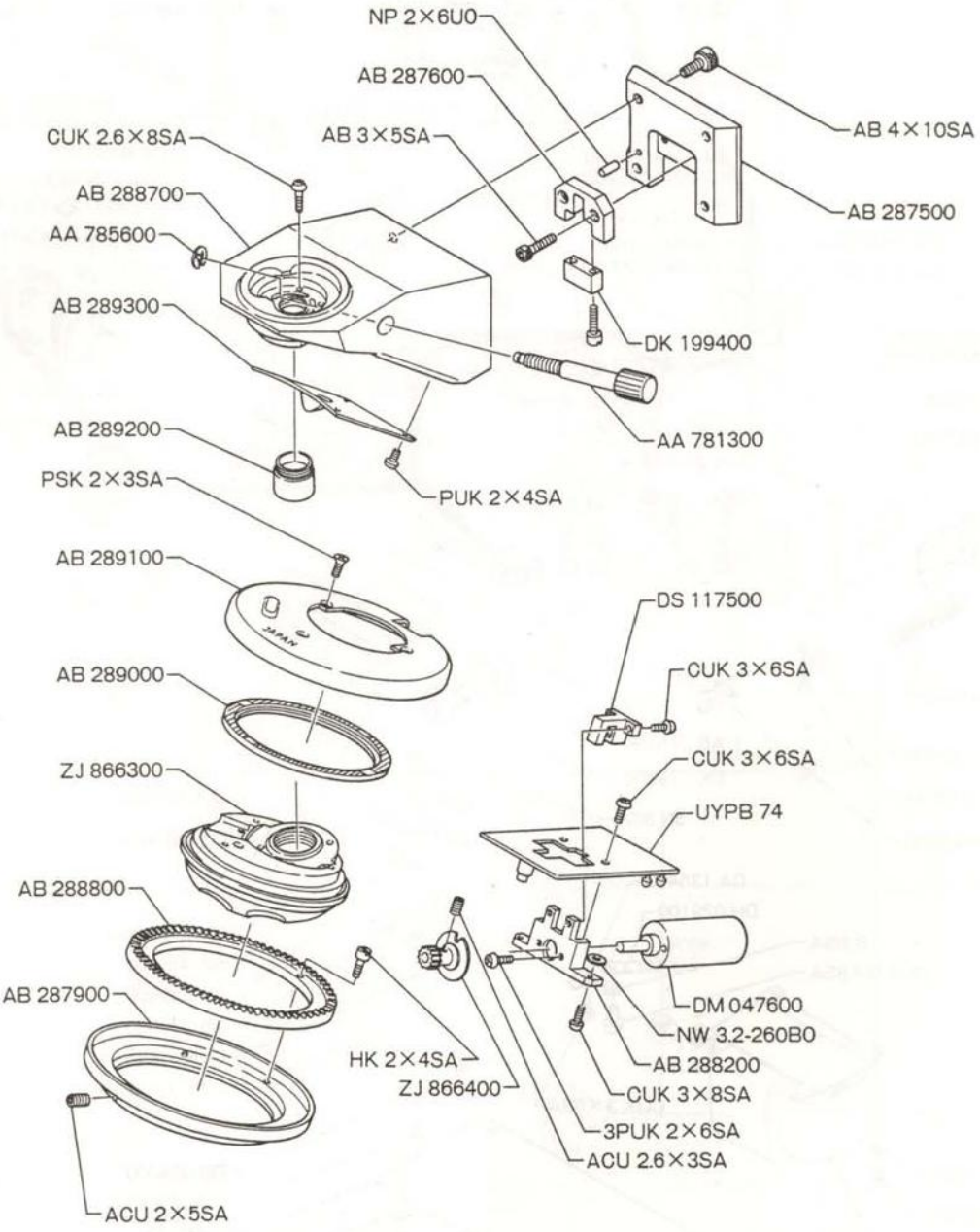
6. AC Inlet ⇨ This is a connector for inserting an AC cord with a noise filter built in. With this, the noise coming in from the power line can be cut.

7. Triac ⇨ This refers to the bidirectional thyristor. It is turned on when either a positive or negative pulse is applied to the gate electrode.
The application of the triac is the control of the AC power in a broad range of applications from household electric appliances to industrial equipment where high reliability is called for. Typical uses are in a light adjusting circuit and a temperature control circuit.

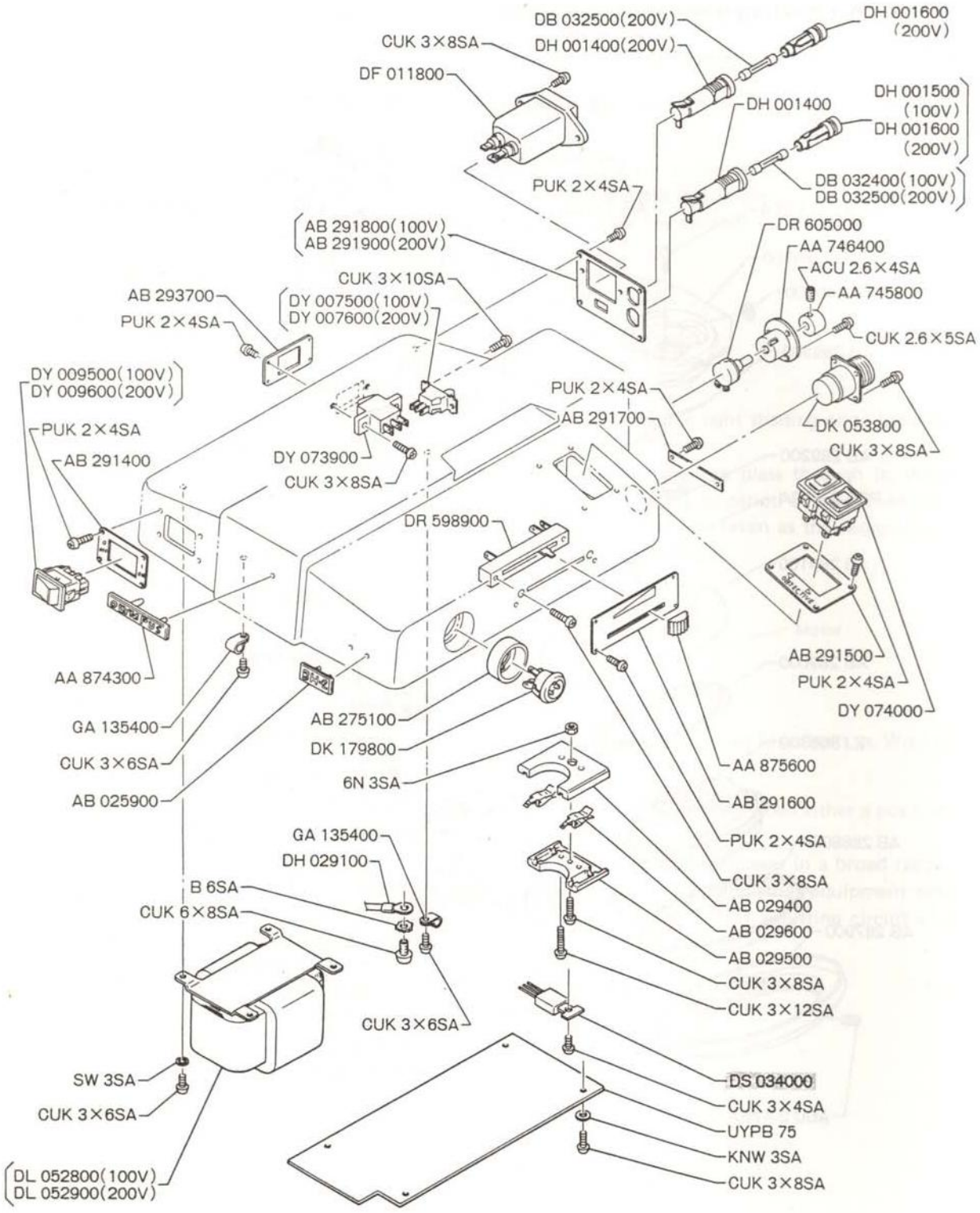
8. SW ⇨ Switch

C. PARTS LAYOUT

1. UYPB74 and Revolving Nosepiece Drive DC Motor

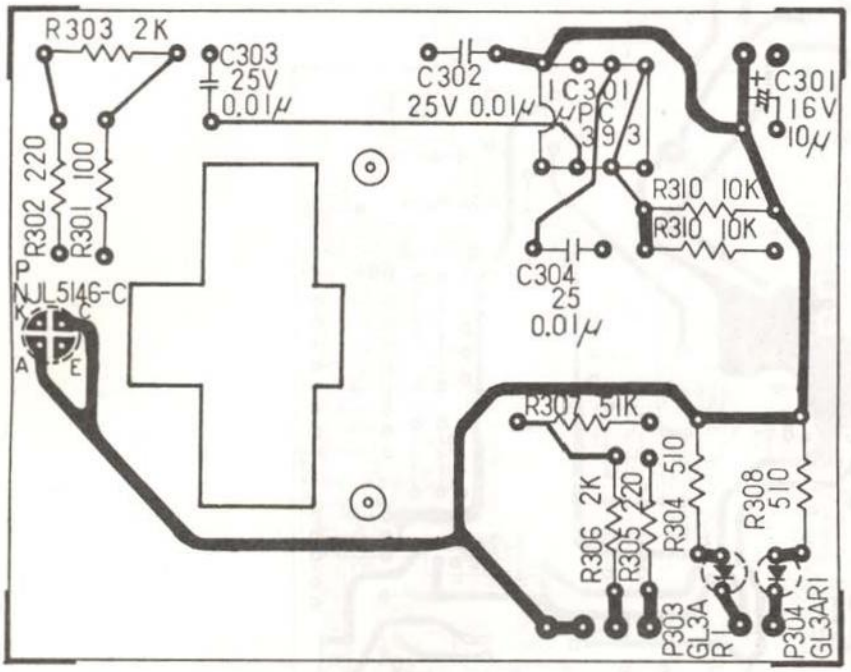


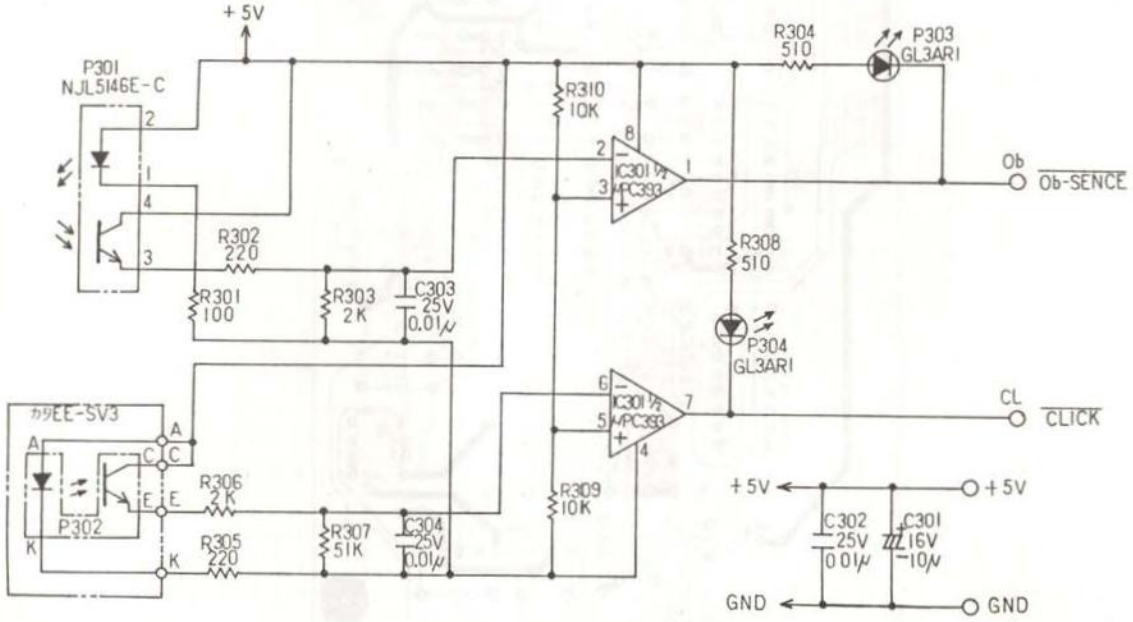
2. UYPB75 and Primary Side Parts



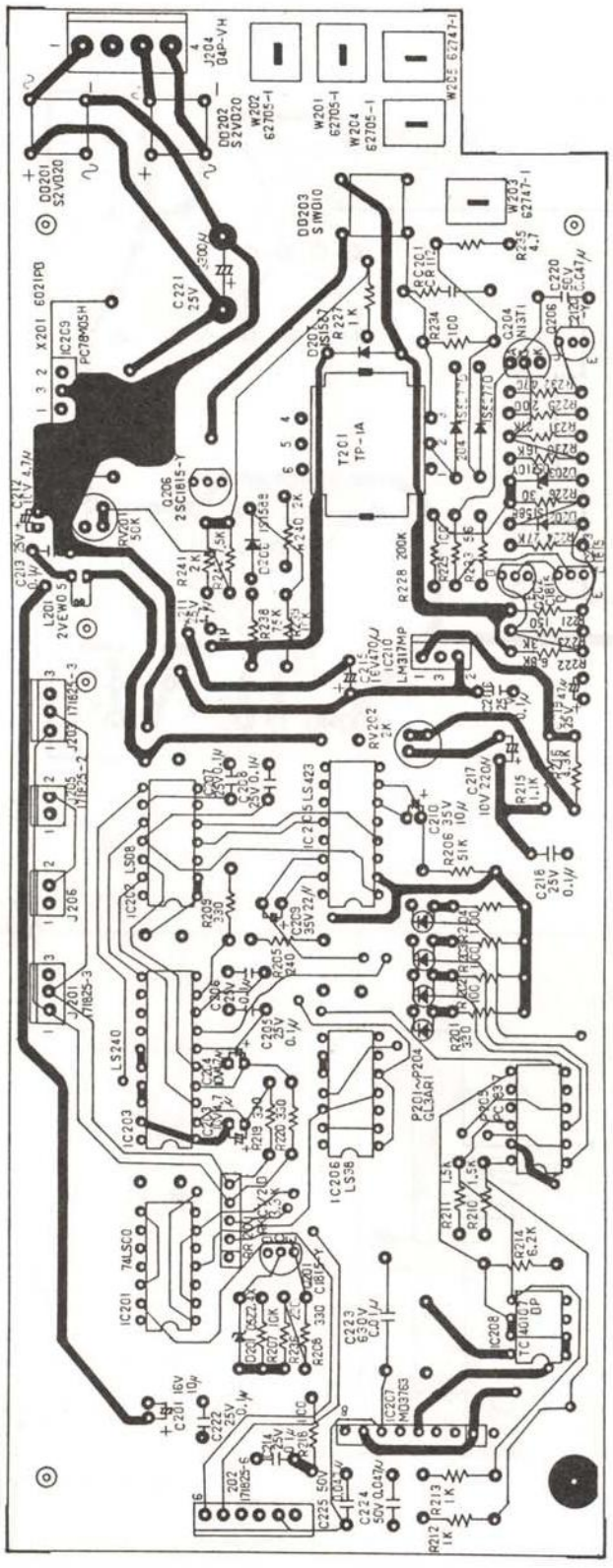
D. CIRCUIT DIAGRAMS

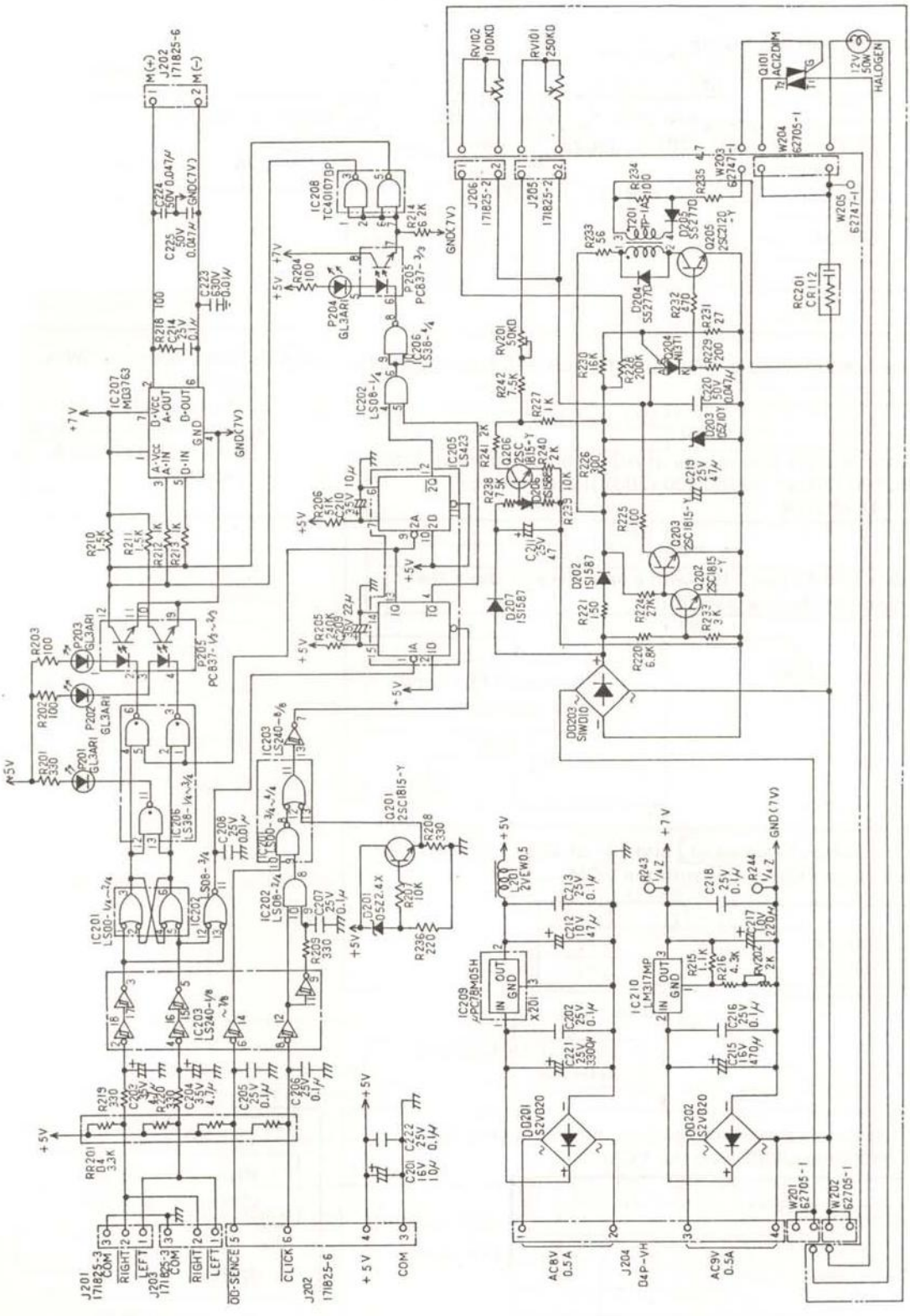
1. UYPB74





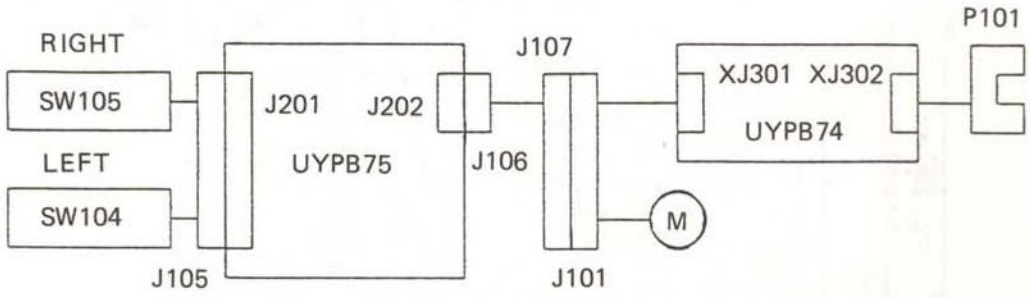
2. UYPB75





E. REVOLVING NOSEPIECE AND ASSOCIATED PARTS

1. Nosepiece does not Rotate



1. Check motor voltage "7V" at both ends of C218 in UYPB75.

NO ◇ OK!

Check the primary side voltage of AC 9V on transformer T101 (DL052800 (200V), DL052900 (200V)) according to [3] – [4] of J104.

NO ◇ OK!

Replace transformer T101 with a new one and check the operation of the new transformer.

OK! ◇ NO

(END)

Replace UYPB75 and check operation.

NO ◇ OK!

(END)

Does the voltage between [1] and [2] of J202 in UYPB75 vary as given below? Check this with the VOM.

	[1] → [2]	[2] → [1]
RIGHT SW–ON	–7V	7V
LEFT SW–ON	7V	–7V

NO ◇ YES

Motor (DM047600) is defective.

Check the condition of the revolving nosepiece drive SW (DY074000) on J105 using the VOM.

	[1] – [2]	[1] – [3]	[2] – [3]
RIGHT SW–ON	○	X	X
–OFF	X	X	X
LEFT SW–ON	X	○	X
–OFF	X	X	X

[○] Conductive
[X] Open

NO ◇ OK!

Replace the SW and check the operation.

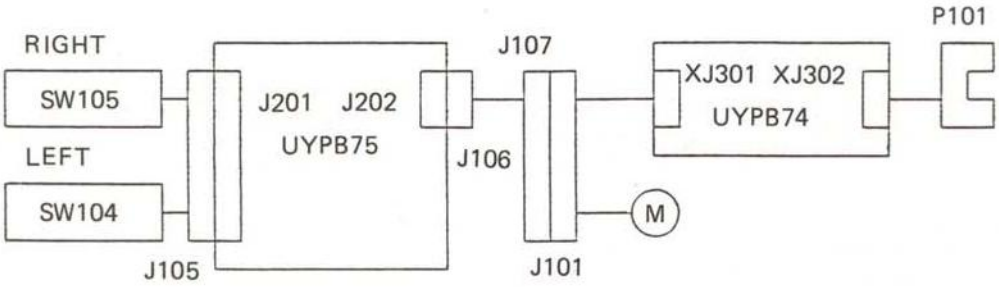
OK! ◇ NO

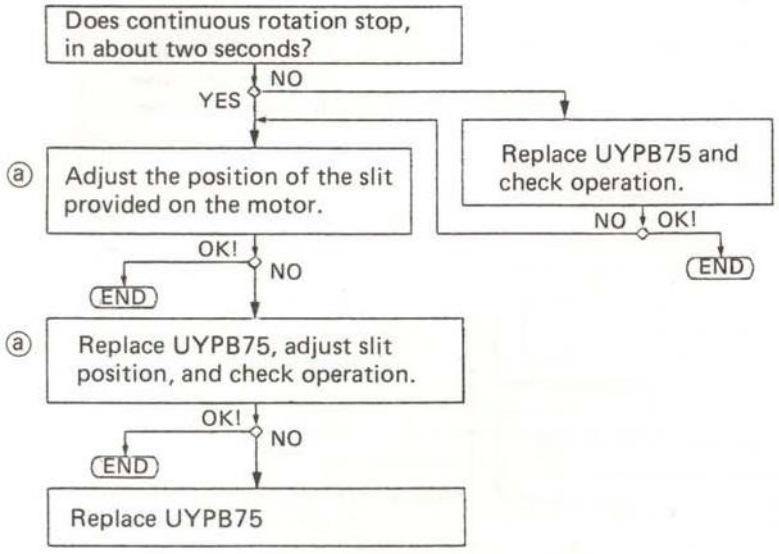
(END)

Replace UYPB75

(CA) 1. Nosepiece drive SW is defective.
2. Motor is defective.
3. Nosepiece drive control circuit of UYPB75 is defective.

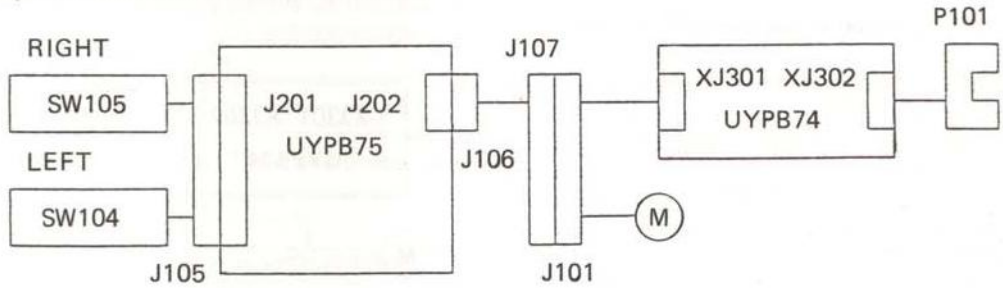
2. Nosepiece does not Stop Rotating

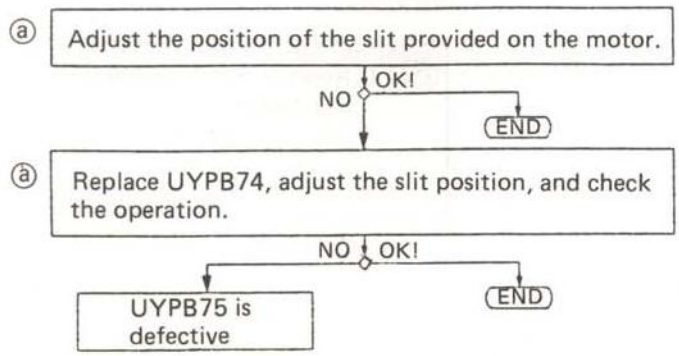




(CA) 1. Position of slit is not correct. 2. Revolver stop signal of UYPB74 is abnormal. 3. Motor control circuit of UYPB75 is defective.
ⓐ Refer to the Repair Manual.

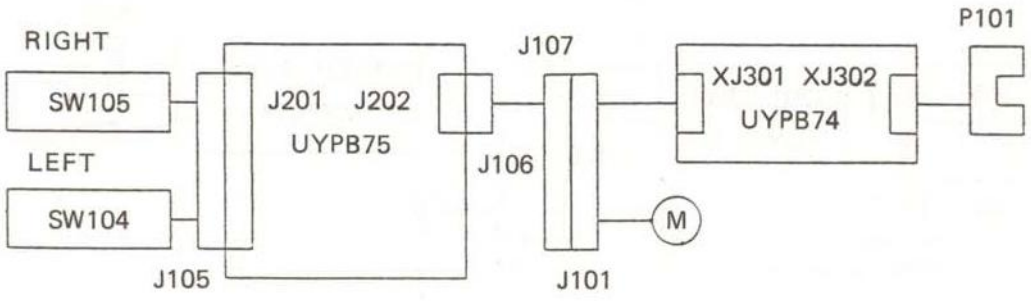
3. Nosepiece does not Click Stop in Position





(CA) 1. Slit position is not correct. 2. Nosepiece stop signal of UYPB74 is abnormal. 3. Motor control circuit of UYPB75 is defective.
ⓐ Refer to the Repair Manual

4. Lack of Power to Rotate Nosepiece



Check motor voltage "7V" at both ends of C218 in UYPB75.
Adjust RV202 if found abnormal.

NO ◇ OK!

Check the secondary-side AC 9V voltage of transformer T101 (DL052800 (100V), DL052900 (200V)) according to [3] – [4] of J104.

NO ◇ OK!

Replace transformer T101 and check operation.

OK! ◇ NO

(END)

Motor (DM047600) is defective.

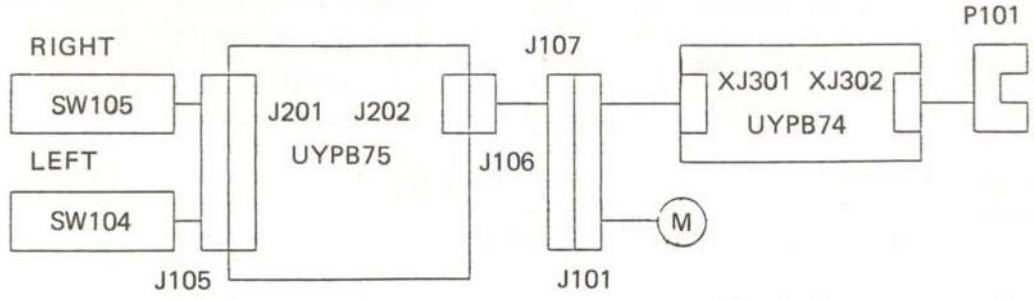
Replace UYPB75 and check operation.

NO ◇ OK!

(END)

(CA) 1. Moror circuit supply voltage is defective.
2. Motor is defective.

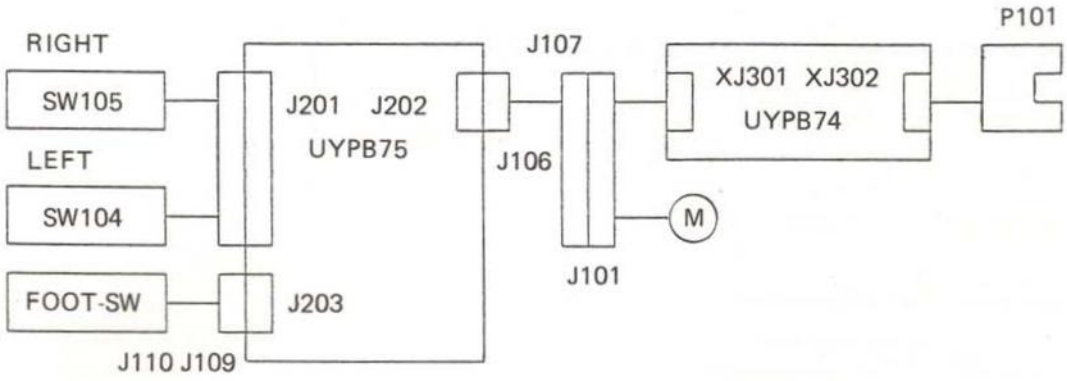
5. Unintended Rotation at Switching On or Off

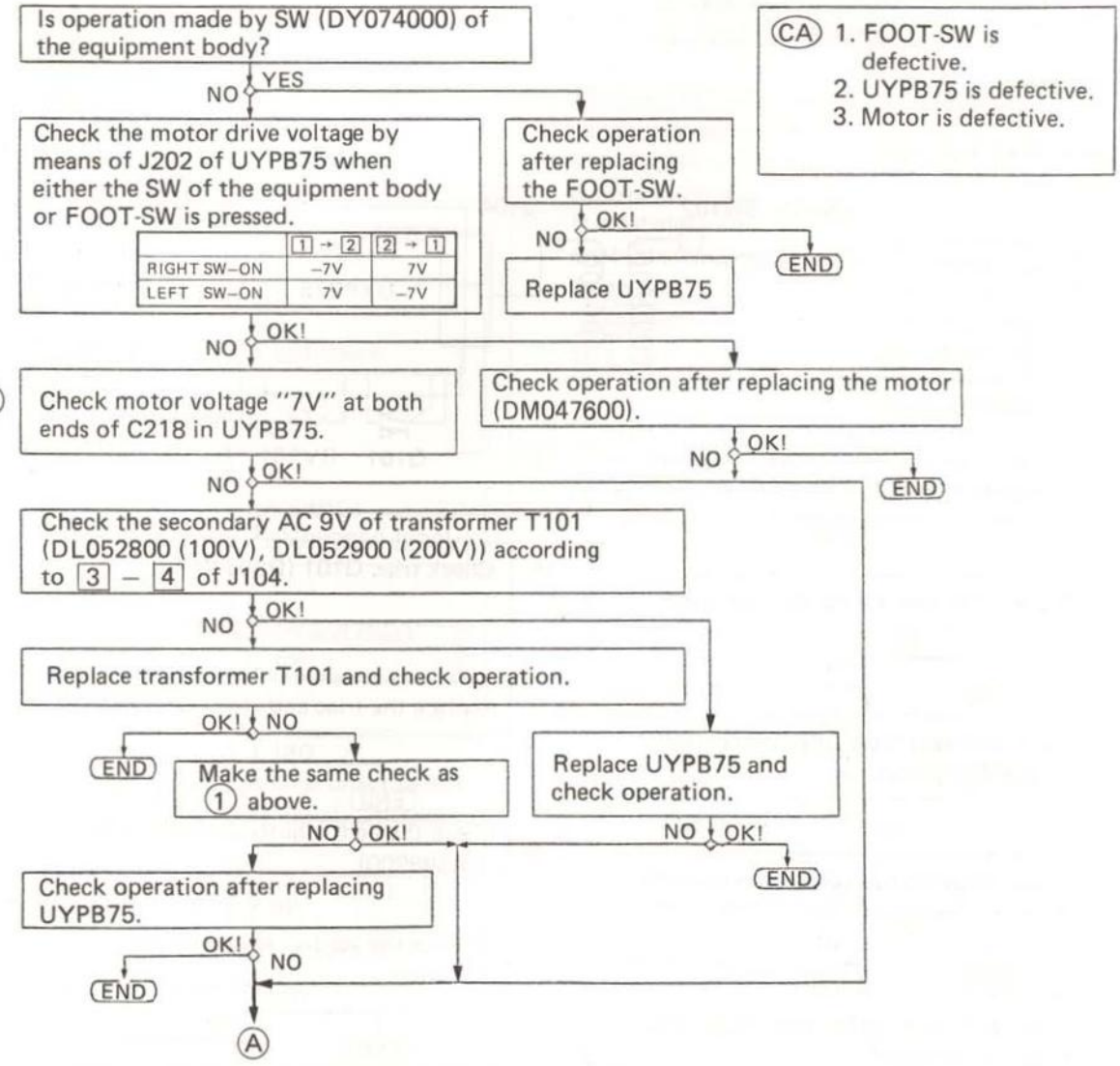


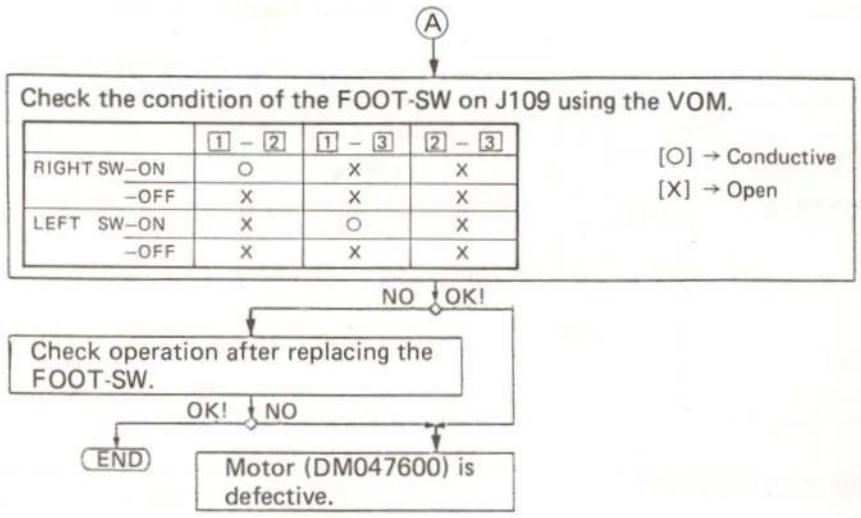
Replace UYPB75

(CA) 1. Reset circuit in UYPB75 is defective.

6. FOOT-SW does not Function



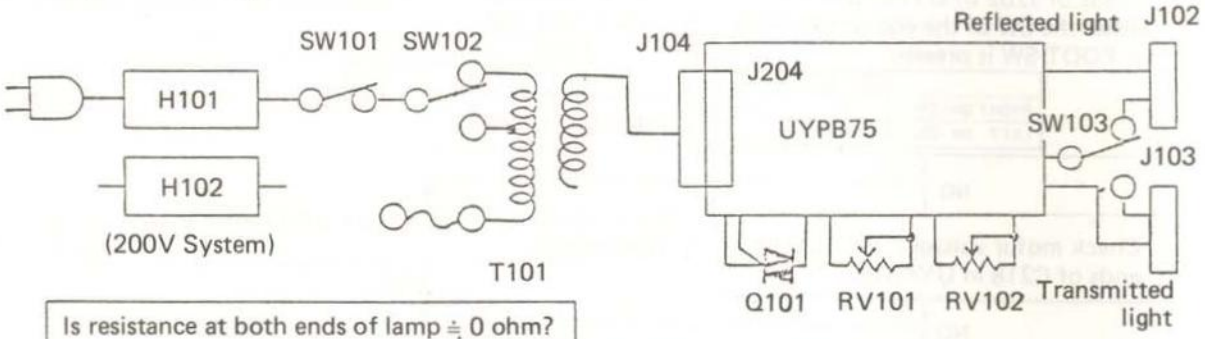


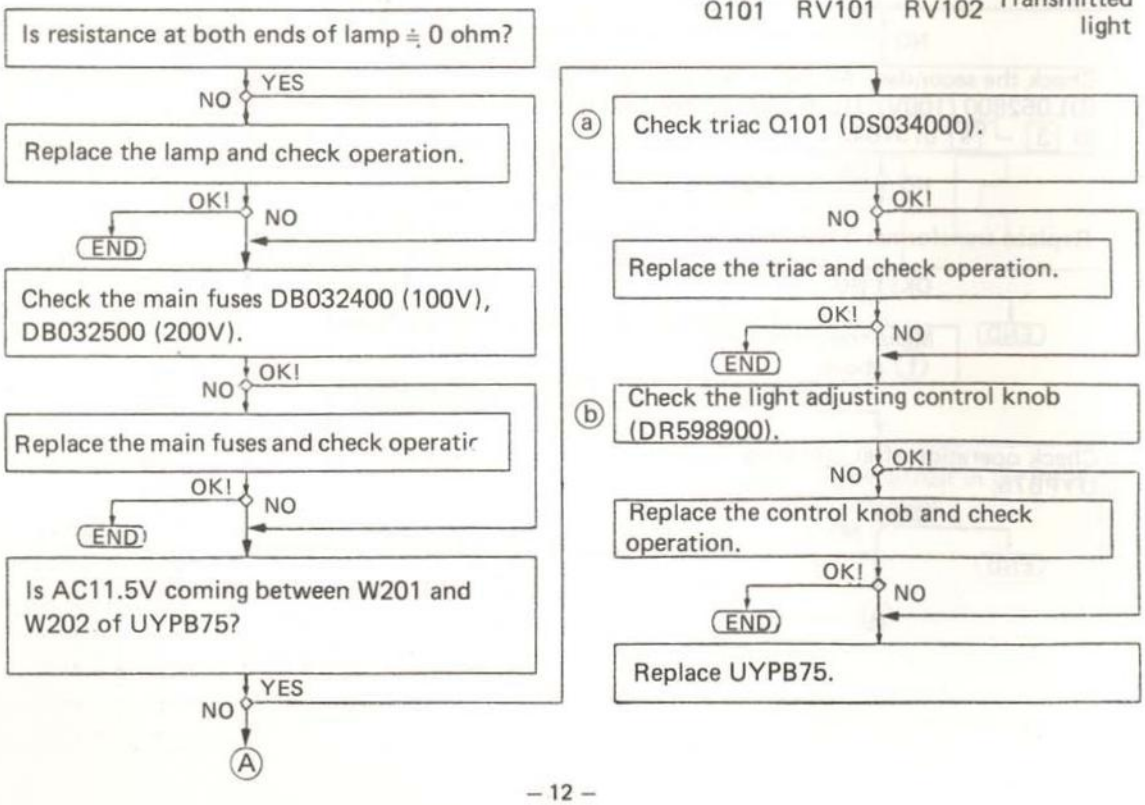


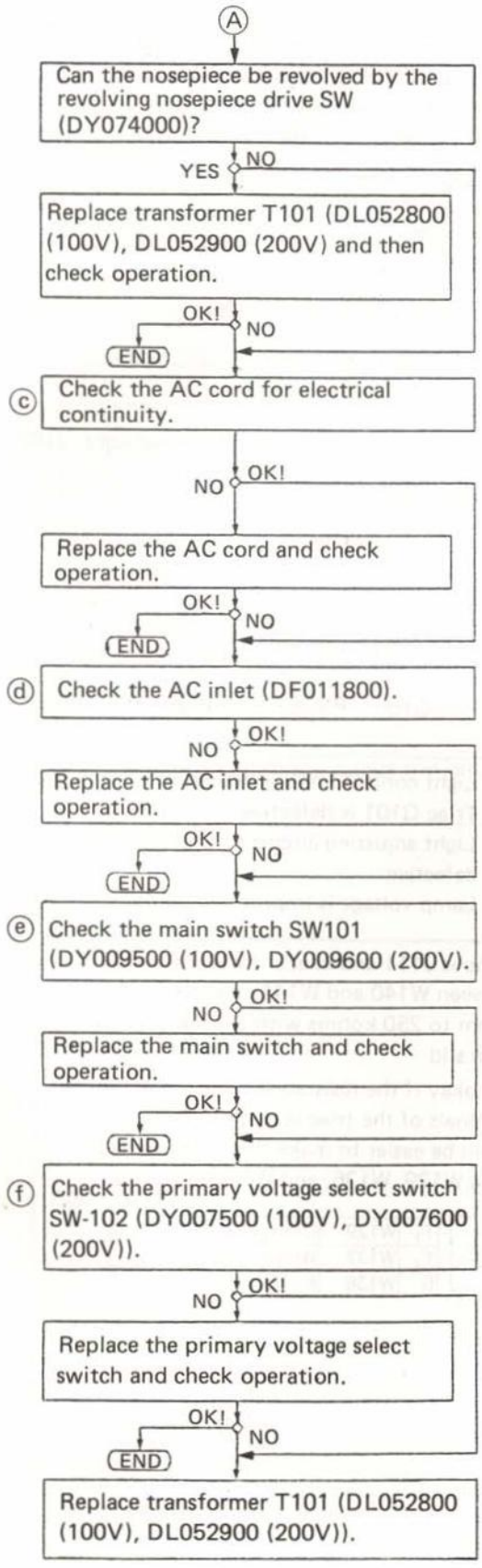
	1 – 2	1 – 3	2 – 3
RIGHT SW–ON	O	X	X
–OFF	X	X	X
LEFT SW–ON	X	O	X
–OFF	X	X	X

F. LAMPS

1. Lamp Does Not Light

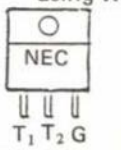




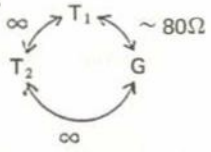


(CA)
1. Lamp filament burned out.
2. Triac Q101 is defective.
3. Light adjusting circuit of UYPB75 is defective.
4. Light control is defective.
5. Transformer T101 is defective.
6. Primary side is defective.

ⓐ If the resistance value among three terminals of the triac is as shown below, it is okay. It will be easier to make this measurement using W129, W136, and W137.

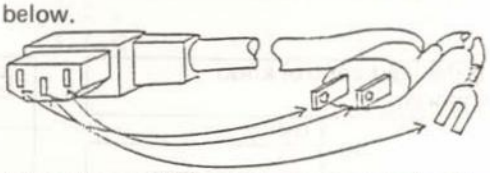


T_1	W129	Orange
T_2	W137	White
G	W136	Brown

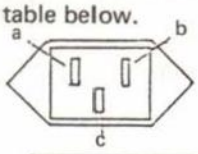


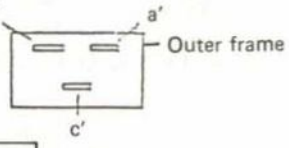
ⓑ Remove J111 and check if the resistance between W140 and W141 smoothly changes from 0 ohm to 250 kohms with the light control knob slid.

ⓒ It is satisfactory if electrical continuity is established between the terminals shown below.



ⓓ When the condition between terminals of AC inlet is checked on the resistance range of the VOM it is normal if as given in the table below.





	a'	b'	c'	O. Frame
a	○	×	×	×
b	×	○	×	×
c	×	×	○	○

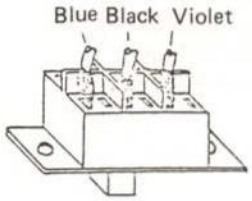
「○」→ Conductive
「×」→ Open

ⓔ When the condition between terminals of the main switch is checked on the resistance range of the VOM, it is normal if as given in the table below.

「○」→ Conductive
「△」→ ~6Ω
「×」→ Open

		1	2	4	5
1	ON		○	△	△
	OFF		×	×	×
2	ON			△	△
	OFF			×	△
4	ON				○
	OFF				×

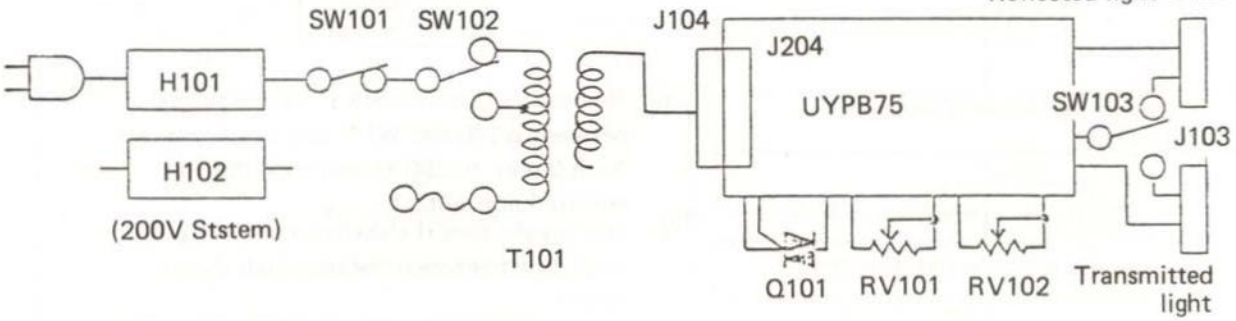
ⓕ When the condition between terminals of the primary voltage select switch is checked on the resistance range of the VOM, it is normal if as given in the table below.



		Blue	Black	Violet
Blue	100V (220V)		X	X
	115V (240V)		○	X
Black	100V (220V)			○
	115V (240V)			X

「○」→ Conductive
「X」→ Open

2. Impossible to Adjust Intensity



ⓐ Check the light control knob (DR598900).
NO ◇ OK!
Replace the light control knob and check operation.
OK! ◇ NO
END

ⓑ Check the triac Q101 (DS034000).
NO ◇ OK!
Replace the triac and check operation.
OK! ◇ NO
END

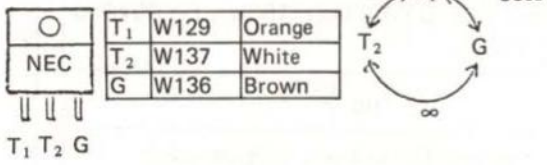
Replace UYPB75 and check operation.
OK! ◇ NO
END

Adjust the lamp voltage as described in the Repair Manual.

CA
1. Light control knob is defective.
2. Triac Q101 is defective.
3. Light adjusting circuit of UYPB75 is defective.
4. Lamp voltage is improperly adjusted.

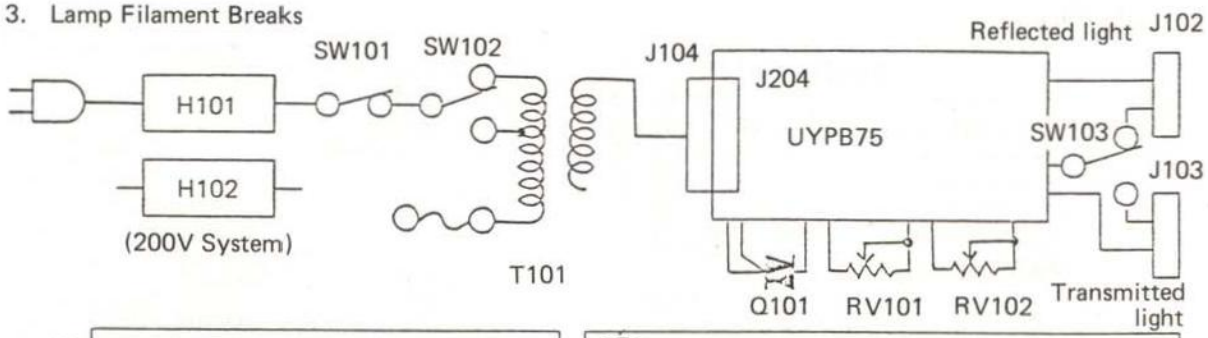
ⓐ Remove J111 and check if the resistance between W140 and W141 changes from 0 ohm to 250 kohms with the light control knob slid.

ⓑ It is okay if the resistance value among three terminals of the triac is as given below.
It will be easier to make this measurement using W129, W136, and W137.



T_1	W129	Orange
T_2	W137	White
G	W136	Brown

3. Lamp Filament Breaks



ⓐ Check the triac Q101 (DS034000).

NO ← OK!

Replace the triac and check operation.

OK! → END
NO →

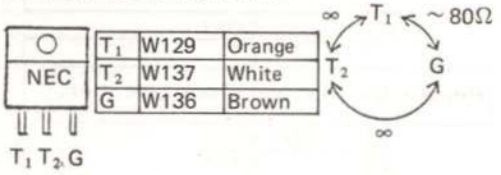
Adjust the lamp voltage in accordance with the Repair Manual.

OK! → END
NO →

Replace UYPB75 and adjust the lamp voltage.

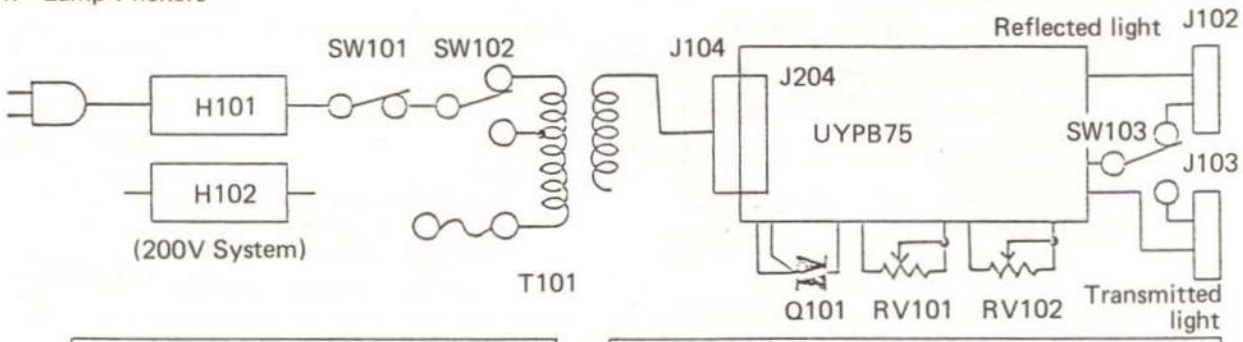
(CA) 1. Triac Q101 is defective.
2. Lamp voltage is improperly adjusted.
3. Light adjusting circuit of UYPB75 is defective.

ⓐ It is okay if the resistance value among three terminals of the triac is as given below.
It will be easier to make this adjustment using W129, W136, and W137.



T_1	W129	Orange
T_2	W137	White
G	W136	Brown

4. Lamp Flickers



See if the inside of lamp house (mainly the lamp and contact) is dirty. Clean it if dirty and check operation.

OK! → END

NO

ⓐ Check the triac Q101 (DS034000).

NO ← OK!

Replace the triac and check operation.

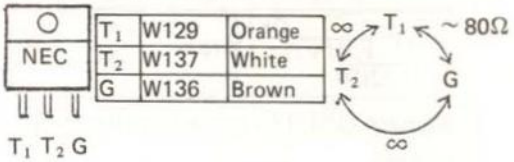
OK! → END

NO

Replace UYPB75 and adjust the lamp voltage.

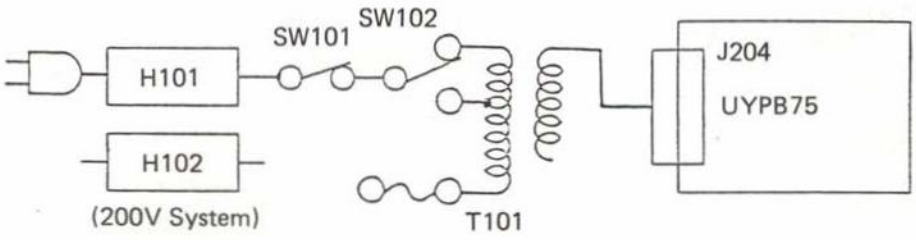
(CA) 1. Lamp making imperfect contact due to dirty contact in the lamp house.
2. Triac Q101 is defective.
3. Light adjusting circuit of UYPB75 is faulty.

ⓐ It is okay if the resistance value among three terminals of the triac is as given below.
It will be easier to make this measurement using W129, W136, and W137.



G. POWER SOURCE

1. Equipment Does Not Operate Even With Main Switch ON



Check main fuse (OB032400 (100V), DB032500 (200V)).
- NO ◇ OK!
- Replace the main fuse and check operation.
- OK! ◇ NO
- END

ⓐ Is transformer T101 (DL052800 (100V), DL052900 (200V)) normal?
- NO ◇ YES
- ⓑ Is primary-side input of transformer T101 normal?
  - NO ◇ YES
  - ⓒ Check the continuity of AC cord.
    - NO ◇ OK!
    - Replace the AC cord and check operation.
    - OK! ◇ NO
    - END
  - Replace the transformer T101 and check operation.
    - OK! ◇ NO
    - END
    - Replace UYPB75.
- Replace UYPB75.

ⓓ Check AC inlet (DF011800).
- NO ◇ OK!
- Replace the AC inlet and check operation.
- OK! ◇ NO
- END
- Ⓐ

(CA) 1. The main fuse burnt out.
2. Transformer T101 is defective.
3. AC inlet is defective.
4. Main switch is defective.
5. Primary-side voltage select switch is defective.
6. Power circuit of UYPB75 is defective.

ⓐ Check the output voltage of the transformer T101 between J104 and W201.

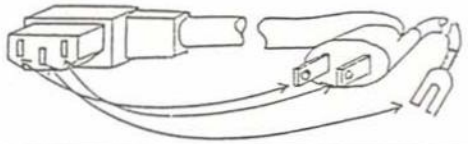
J104 [1]	red-J104	[2]	red	AC 8V
J104 [3]	black-J104	[4]	white	AC 9V
J104 [4]	white-W201		blue	AC11V

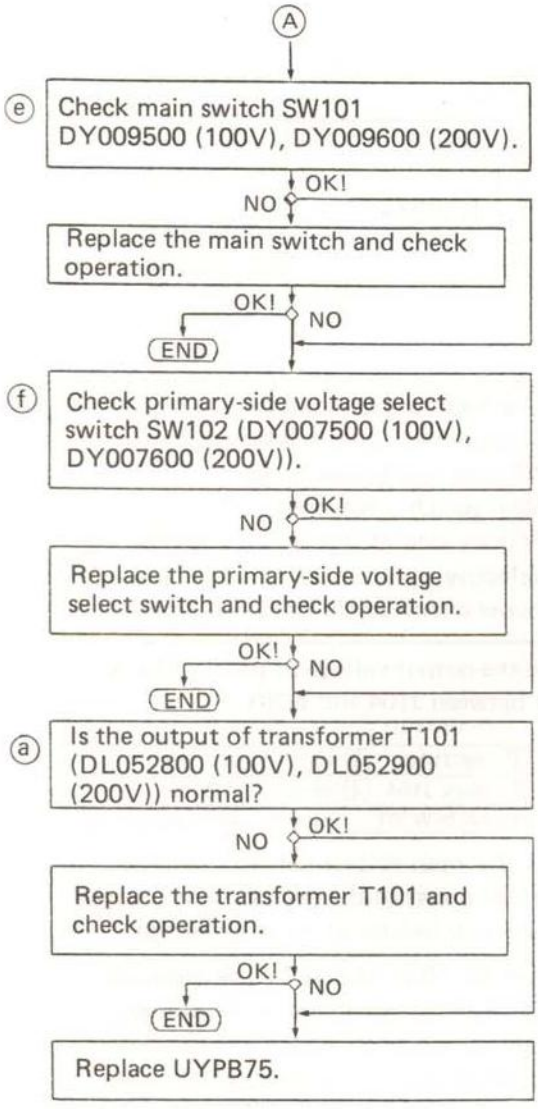
ⓑ Check the input voltage between terminals (blue and violet) of the primary-side voltage and terminal (white) of the main switch.

a. Can AC 100V (AC 220V) be measured between the violet line of the primary-side voltage select switch and terminal 2 (white line) of the main switch when the input voltage is AC 100V (AC 220V).

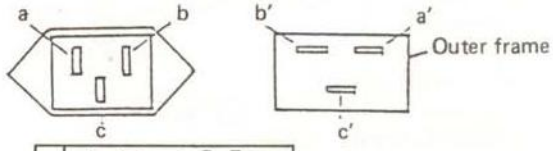
b. Can AC 115V (AC 240V) be measured between the blue line of the primary-side voltage select switch and terminal 2 (white line) of the main switch when the input voltage is AC 115V (AC 240V).

ⓒ The power is normal if electrical continuity is established between the terminals as shown below.





ⓓ When the condition between terminals of the AC inlet is checked on the resistance range of the VOM, the power is normal if as given in the table below.



	a'	b'	c'	O. Frame
a	○	X	X	X
b	X	○	X	X
c	X	X	○	○

「○」→ Conductive
「X」→ Open

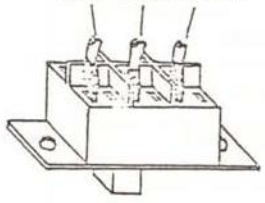
ⓔ When the condition between terminals of the main switch was checked on the resistance range, the power is normal if as given in the table below.

「○」→ Conductive
「Δ」→ ~ 6Ω
「X」→ Open

		1	2	4	5
1	ON		○	Δ	Δ
	OFF		X	X	X
2	ON			Δ	Δ
	OFF			X	Δ
4	ON				○
	OFF				X

ⓕ When the condition between terminals of the primary-side voltage select switch is checked on the resistance range, the power is normal if as give in the table below.

		Blue	Black	Violet
Blue	100V (220V)		X	X
	115V (240V)		○	X
Black	100V (220V)			○
	115V (240V)			X



「○」→ Conductive
「X」→ Open

Progress through Precision

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PRINTED IN JAPAN
MTS 0186, 300KY